



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/512,669	02/24/00	JECK-PROSCH	U 32140-153023
------------	----------	-------------	----------------

IM22/1018
Venable Baetjer Howard & Civiletti LLP
P O Box 34385
Washington DC 20043-9998

EXAMINER

CLEVELAND, M

ART UNIT

PAPER NUMBER

1762

DATE MAILED:

10/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/512,669

Applicant(s)

JECK-PROSCH ET AL.

Examiner

Michael Cleveland

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12, 13, 16-18, 21, 23, 24, 27-32, 35-39 and 42 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 12, 13, 16-18, 21, 23, 24, 27-32, 35-39 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 12-13 and 23-24 are objected to because of the following informalities: Claims 23 and 24 may duplicate claims 12 and 13(See 35 USC 112, 2nd paragraph rejection, below).
2. Claims 30 and 37 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. (See also 35 USC 112, 2nd paragraph rejection, below).
Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 12-13, 16-18, 21, 27, 29, 36, and 42 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
Claims 12-13 are unclear because they depend from cancelled claim 11. For purposes of applying art, they have been treated as depending from claim 21. However, as noted above, if they were so amended, they would duplicate claims 23 and 24.
Claims 16-18 and 42: The claims are unclear because the term "the polymer" in claim 42 lacks antecedent basis. Also, claim 16 is unclear because it claims that the energetic softener is at least one of three polymers. However, the antecedent basis for the term "the energetic softener" in parent claim 42 states that the energetic softener is a monomer. Originally filed claim 8 states that the compounds of independent claim 36 (from which 42 and 16 depend) are energetic, monomer softeners. The Examiner recommends including the term "an energetic, monomer softener" in claim 36, and changing the language of claim 42 to state "*a polymer and the energetic softener*", thereby providing antecedent basis for claim 16. For purposes of

Art Unit: 1762

applying art, the claims have been interpreted in this way. (Claims 17 and 18 are rejected as containing the formal flaws of parent claim 16.)

Claim 18 is unclear because the term "the nitric acid ester" lacks antecedent basis. For purposes of applying art, the claims has been interpreted as further requiring that the propellant be surface treated (e.g., mixed) with one of the claimed nitric acid esters.

Claims 21, 29, and 36: It does not appear that a propellant can be monobasic, dibasic, and tribasic. For purposes of applying art, the Examiner treated the claims as stating "mono-, di-, or tri-basic" and recommends so amending the claims. Accordingly, claims 30 and 37 do not appear to further limit parent claims 29 and 36, as noted above.

Claim 42: There is no antecedent basis for the term "the two components". For purposes of examination, the Examiner has assumed that the two components referred to are the polymer and the energetic, monomer softener.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 21, 23, 27-31 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Willer et al. (U.S. Patent 5,801,325, hereafter '325). (Menke et al., U.S. Patent 5,596,168, is also cited for its teaching of definitions relevant to claim 31.)

Claims 21 and 29: '325 teaches compositions of solid propellants dispersed in binders, such as hydroxy-terminated polybutadiene and glycidyl azide polymer (col. 6, line 60-col. 7, line 20). It appears that the formulations must have been made by a mixing (i.e. surface-treating) process, such as the one described using PGN (col. 3, lines 10-24; col. 5, line 64-col. 6, line 2; col. 8, lines 36-52).

Claims 21 and 29-30: The propellant may be mono or polybasic (col. 5, line 64-col. 6, line 2).

Art Unit: 1762

Claims 23 and 31: The propellant may be HMX or RDX (octogen or hexogen) (col. 5, line 64-col. 6, line 2). (See Menke et al., U.S. Patent 5,596,168, col. 1, lines 13-20, which teaches that HMX and RDX are octogen and hexogen, respectively.)

Claims 27-28 and 35: Nitroglycerin (a nitric acid ester which Applicant has specified as an energetic, monomer softener in originally filed claim 18) may be added simultaneously with the addition of the polymer (to treat a monobasic propellant) (col. 5, lines 43-55).

7. Claims 36-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Lutz (U.S. Patent 5,520,757, hereafter '757).

Claims 36, 38: '757 teaches mixing (i.e., surface treating) nitrocellulose (a propellant powder in colloidal form) with alkyl nitrate ethyl nitramines (alkyl NENAs) (col. 3, lines 11-29).

Claims 39: The mixing composition may also include nitroglycerin (col. 2, line 65- col. 3, line 10).

Claim 37: Nitrocellulose is monobasic.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 12, 16, 18, 21, 23, 27-31, 35-38, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lund et al. (U.S. Patent 5,529,649, hereafter '649) in view of Willer et al. (U.S. Patent 5,801,325, hereafter '325). (Menke et al., U.S. Patent 5,596,168, is also cited for its teaching of definitions relevant to claims 12, 23, 31, and 38.)

Claim 21, 29, and 36: Lund '649 teaches explosive compositions that combine an explosive (i.e., a propellant) such as TEX with a binder (col. 3, lines 38-52). The propellant may be monobasic or polybasic (col. 3, lines 18-29; col. 4, lines 1-11; col. 5, lines 26-34).

Art Unit: 1762

'649 is silent as to the method of combining and therefore does not explicitly disclose that the propellant and binder are combined by surface treating (e.g., mixing) a propellant powder with the binder.

'325 teaches that propellant formulation may include solid fuel and oxidizer particulates (i.e., the propellants) dispersed in a binder matrix (col. 1, lines 11-16). '325 also teaches that such formulations may be made by mixing the propellants with the binders (col. 8, lines 38-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the propellant and binder formulations of '649 by mixing them to form propellant particulates in a binder matrix by the mixing (i.e., surface treating) method of '325 with a reasonable expectation of success.

Claim 21: The binder may be hydroxy-terminated polybutadiene or polyethylene glycol (a polyether) (col. 3, lines 38-44).

Claims 29, 16: The binder may be polyglycidyl azide (col. 3, lines 44-46).

Claims 36, 18, 27-28, 35, 42: The binder may include plasticizers, such as alkyl nitrate ethylnitramines (NENA) or nitroglycerine (col. 3, lines 52-63). It appears that the binder and plasticizer are applied simultaneously. However, they must inherently be applied either simultaneously or consecutively.

Claims 12, 23, 31, 38: The propellant may include HMX or RDX (octogen or hexogen) (col. 3, lines 19-29). (See Menke et al., U.S. Patent 5,596,168, col. 1, lines 13-20, which teaches that HMX and RDX are octogen and hexogen, respectively.)

Claims 30 and 37: The propellant may be monobasic or polybasic (col. 3, lines 18-29; col. 4, lines 1-11; col. 5, lines 26-34).

10. Claims 24 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willer '325 in view of O'Meara (U.S. Patent 5,682,009, hereafter '009).

Willer '325 teaches the method for coating propellants with binders as described above, but does not explicitly teach that the propellant may contain a nitric acid ester such as nitroglycerin.

'009 teaches that it is known to provide propellant powders containing nitroglycerin added as an energy booster (col. 1, lines 33-39). Thus, it would have been obvious to one of

Art Unit: 1762

ordinary skill in the art at the time the invention was made to have used such a powder with the expectation of similar results or to have added nitroglycerine to the propellant powder of '325 as an energy booster.

11. Claims 13, 24, 32, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lund '649 and Willer '325 and further in view of O'Meara (U.S. Patent 5,682,009, hereafter '009).

Lund '649 and Willer '325 teach the method for coating propellants with binders as described above, but does not explicitly teach that the propellant may contain a nitric acid ester such as nitroglycerin.

However, Lund teaches that the explosives may be used with other convention explosive ingredients. '009 teaches that it is known to provide propellant powders containing nitroglycerin added as an energy booster (col. 1, lines 33-39), that is, that nitroglycerin is a conventional explosive ingredient. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used such a powder with the expectation of similar results or to have added nitroglycerine to the propellant powder of '649 as an energy booster.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lund '649 and Willer '325 and further in view of Manning et al. (U.S. Patent 5,798,481, hereafter '481).

Lund '649 and Willer '325 are discussed above. Lund '649 teaches that a plasticizer such as an alkyl NENA may be included in the binder (col. 3, lines 38-63), but does not specify that it is a methyl, ethyl, or butyl NENA.

'481 teaches that methyl and ethyl NENA are useful plasticizers for propellants (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used methyl or ethyl NENA as the particular alkyl NENA of Lund '649 with a reasonable expectation of success.

Response to Arguments

13. Applicant's arguments filed 9/4/2001 have been fully considered but they are not persuasive.

Art Unit: 1762

Applicant argues that claim 42 has been amended to delete the term "the two components", but the argument is unconvincing because claim 42 was not amended.

The rejection under 35 USC 102(b) as anticipated by O'Meara '009 are withdrawn in view of Applicant's amendment. However, the argument is unconvincing because the claims are rejected as anticipated by Willer '325 and as obvious over Lund '649 in view of Willer '325.

Applicant argues that '757 does not provide any suggestions for treating the surface of a propellant powder without providing any argument or evidence for the assertion. '757 teaches mixing (and therefore, necessarily, surface treating) a powder in suspension with alkyl NENAs.

Applicant argues that '325 does not teach surface treating because it teaches mixing, and that "mixing" should not be equated with "surface treating". Terms are given their broadest reasonable interpretation during examination. The term "surface treating" is reasonably inclusive of mixing of the binder and propellant to provide a dispersion of the propellant in the binder necessarily involves contact between (i.e., surface treating of) the propellant and binder.

Applicant argues that it is not Applicant's attempt to produce prior art homogeneous compositions. The breadth of the claims does not exclude the formation of homogeneous compositions of propellants in binders.

Applicant argues that '009 may not be used as a reference because it does not teach spraying nor a uniform spraying temperature. The argument is unconvincing because neither spraying nor a uniform temperature is claimed.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Menke et al. (U.S. Patent 5,596,168) is cited for its teaching of alternate names of HMX and RDX (col. 1).

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 1762

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

MBC

MBC

October 12, 2001



**SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700**